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10/598,475	06/01/2007	Ralf Hying	3717483-00085	5907
24573	7590	03/02/2010	EXAMINER	
K&L Gates LLP P.O. Box 1135 CHICAGO, IL 60690			CHOWDHURY, SULTAN U.	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/598,475	Applicant(s) HYING ET AL.	
	Examiner SULTAN CHOWDHURY	Art Unit 2878	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 42-53 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 42-53 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 August 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

Status

1. This Office Action is in response to Applicant's Amendment filed on 12/21/2009. Claims 22-41 have been cancelled. Claims 42-53 are added as new claims. Claims 42-53 are pending.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "projection device", "projection surface", "charge couple device" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

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The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 42-53 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

As of claim 42, there is no written description of "emitting light from the projection device to a projection surface at a first angle"...."measuring a first time period between emitting the light at the first angle and receiving the light a first time".... "emitting light from the projection device to the projection surface at a second angle different from the first angle".... "measuring a second time period between emitting the light at the second angle and receiving the light a second time".... "emitting light from the projection device to the projection surface at a third angle different from the first angle and the second angle".... "measuring a third time period between emitting the light at the third angle and receiving the light a third time".... "ascertain a fourth light intensity"...."ascertain a fourth angle that is normal to the projection surface based on the first time period between, the second time period, and the third time period"...."projecting the image from the projection device at an angle that is parallel to the fourth angle".

Claims 43-53 are rejected as being dependent of claim 42.

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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6. Claims 42-53 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As of claim 42, "first angle", "second angle", "third angle" and "fourth angle" are indefinite due to lack of written description. For the purpose of examination, the examiner interpreted (as understood by the examiner) first angle as elevation angle, second angle as roll angle, third angle as azimuth angle and fourth angle as ideal angle.

"first time period", "second time period" and "third time period" are indefinite due to lack of written description. For the purpose of examination, the examiner interpreted (as understood by the examiner), measurements of the time periods are done by the sensors.

"ascertain a fourth light intensity" is indefinite due to lack of written description. For the purpose of examination, the examiner interpreted (as understood by the examiner), the measurement of fourth light intensity is done by repeating the angle measurement process.

Claims 43-53 are rejected as being dependent of claim 42.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 42, 45, 48 are rejected under 35 U.S.C. 102(b) as being anticipated by Raskar (US 6,520,647 B2).

As of claim 42, Raskar teaches a method of projecting an image from a projection device 100 [Fig 1a] (projector), the method comprising:

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- emitting light from the projection device 100 [Fig 1a] (projector) to a projection surface (screen) 101 at a first angle 301 (elevation angle) (col 2, lines 40-45), measuring a first time period (using sensors 201-203) between emitting the light at the first angle 301 and receiving the light a first time;

- emitting light from the projection device 100 [Fig 1a] to the projection surface 101 at a second angle 302 (roll angle) (col 2, lines 40-45) different from the first angle, measuring a second time period (using sensors 201-203) between emitting the light at the second angle and receiving the light a second time;

- emitting light from the projection device to the projection surface at a third angle 303 (azimuth angle) (col 2, lines 40-45) different from the first angle and the second angle, measuring a third time period (using sensors 201-203) between emitting the light at the third angle and receiving the light a third time;

- ascertain a fourth light intensity (by repeating the angle measuring process), ascertain a fourth angle 312 (ideal angle) (col 2, lines 40-45) that is normal to the projection surface; see [0028] based on the first time period between, the second time period, and the third time period (using sensors 201-203), projecting the image from the projection device 100 [Fig 1] at an angle that is parallel to the fourth angle 312.

As of claim 45, Raskar teaches emitting light from the projection device 100 [Fig 1a] to the projection surface 101 at the first angle 301 includes emitting light from a laser; see [0020].

As of claim 48, Raskar teaches measuring the first time period between emitting the light (from the projector) at the first angle 301 and receiving the light the first time uses a charge coupled device 203 [Fig 1a].

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Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 43-44 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raskar in view of Minich et al (US 5, 700,076 A; Minich).

As of claim 43, Raskar teaches the invention as cited above except for the first, second and third light intensities.

Minich teaches an image processing system and method, comprising three lasers 222 (red), 226 (green) and 230 (blue) [Fig 2] producing sequential mono-colored pulses of high intensity light (col 6, lines 40-43).

It would have been obvious to a person of ordinary skill in the art at the time of invention to have three light intensities produced by lasers as taught by Minich to the system as disclosed by Raskar in order to provide a new and improved laser illuminated image projection system and a method of using it, to produce bright display images in a highly efficient manner (col 3, lines 28-30; Minich).

As of claim 44, Minich teaches a method of regulating brightness (via modulator 624) [Fig 6] associated with projecting the image from the projection device based on the first light intensity from laser 222, the first second intensity from laser 226, and the third light intensity from laser 230.

11. Claims 46, 47, 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raskar in view of Tanaka (US 5,541,723 A).

As of claim 46, Raskar teaches the invention as cited above except for first angle

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measurement is done by a light emitting diode.

Tanaka teaches the light projector to carry out a first light projection to emit a first light LED1 [Fig 18] at a predetermined angle with a first light distribution (col 5, lines 9-11).

It would have been obvious to a person of ordinary skill in the art at the time of invention to have three light intensities produced by LED's as taught by Tanaka to the system as disclosed by Raskar in order to achieve correct object distance information (col 5, lines 33-34; Tanaka).

As of claim 47, Tanaka teaches measuring the first time period between emitting the light by LED 1 at the first angle and receiving the light the first time uses a photodiode (PSD); (col 1, lines 20-25).

As of claim 49, Tanaka teaches each step is repeated at different time interval (col 5, lines 20-25).

As of claim 50, Tanaka teaches a focus of the projection device is manipulated (by means of lenses 2-L and 2-R) based on a mean distance from the projection device to the projection surface 1-L, 1-R [Fig 17].

12. Claims 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Raskar in view of Katz et al (US 5,580,140 A; Katz).

As of claim 51 & 52, Raskar teaches the invention as cited above except for the light source (projector) is turned off based on a maximum and minimum distance.

Katz teaches method and apparatus for projecting images from a moving train where the projector 1 [Fig 1] is turned off (and the light source) when distance is greater than the maximum predetermined value or less than a minimum value (col 3, lines 55-59).

It would have been obvious to a person of ordinary skill in the art at the time of invention to turn off the projector based on a maximum or minimum distance as taught by Katz to the

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system as disclosed by Raskar in order to project images from a moving surface relative to a viewer (col 1, lines 6-7; Katz).

As of claim 53, Katz teaches method and apparatus for projecting images from a moving train where the projector 1 [Fig 1] is turned off (and the light source) when distance is greater than the maximum predetermined value (col 3, lines 55-59). Although Katz did not specifically teach that the projector will be turned off if the angle between a projection axis and the normal angle reaches its maximum value, it would have been obvious to a person of ordinary skill in the art at the time of the invention to conserve energy.

Conclusion

13. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SULTAN CHOWDHURY whose telephone number is (571)270-3336. The examiner can normally be reached on Monday through Thursday, 7:00-4:30 with alternate Monday through Friday 7:00 AM through 4:30 PM.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GEORGIA EPPS can be reached on 571-272-2328. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/S. C./
Examiner, Art Unit 2878

/Georgia Y Epps/
Supervisory Patent Examiner, Art Unit 2878